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This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should be able to perform the division operation when the divisor is a decimal fraction. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

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BOOKLET 11

OF

Report No. 16-L

Occupational Mathematics

DIVISION OF DECIMALS

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Hello, again. This booklet on the division of decimals will explain how we divide when the divisor is a decimal. Are you ready to begin? Good!

The way we shall divide when the divisor is a decimal is to <u>always</u> change the divisor to a whole number. This is done by multiplying by a multiple of ten.

Let's look at an example problem. Divide 4 by .2. Now $.2\overline{)4}$ can be written as the fraction 4/.2. The main step, then, is to change the divisor (.2) to a whole number. This is done by multiplying numerator and denominator by 10.

4/.2 then becomes 40/2 or $2\overline{)40}$, which is an equivalent form of $.2\overline{)4}$. It is easy to see that our answer is 20. Let's look at the steps again.

Step 1 -- $.2\overline{)4}$ = 4/.2 (change division problem to a fraction)

Continued on next page

Step 2 -- 4/.2 = 40/2 (find an equivalent form of the fraction)

Step 3 -- 40/2 = $2\overline{)40}$ (change back to our division problem)

Step 4 -- 20 (work out the answer as we did in Booklet #I)

Remember!! Always change your <u>divisor</u> to a whole number.

Turn to page 129.

$.3/\overline{18} = ?$

(a) 600 Turn to page 131

(b) 60 Turn to page 136

(c) 6 Turn to page 140

(d) .6 Turn to page 145

Your answer is incorrect.

Let's look at the example problem. $1.4/\overline{.28}$

Step 1 -- $1.4/\overline{.28}$ = $1.4/\overline{.2\,8}$ = $14/\overline{2.8}$

Step 2 -- $14/\overline{2.8}$ = $14/\overline{2.8}$ = .2

$$\begin{array}{r} .2 \\ 2\,8 \overline{)2.8} \\ \underline{2\,8} \end{array}$$

In other words, first write the problem in an equivalent form where the divisor is a whole number and then divide.

Work this problem.

.4 ÷ .2 = ?

(a) .2 Turn to page 146

(b) 2 Turn to page 153

You need to look at how to divide with a decimal divisor in detail. Let's use the problem $.3\overline{)18}$ to explain the process.

FIRST: Change the problem into fractional form. In other words, $.3\overline{)18}$ becomes 18/.3. The fraction 18/.3 is viewed as 18 broken into equal parts of .3 each.

SECOND: The most important step is to change the fraction into an equivalent fraction where the denominator will be a whole number rather than a decimal. This is done by multiplying numerator and denominator by a multiple of 10. Using our example problem, we take 18/.3 and multiply numerator and denominator by 10, getting 180/3.

THIRD: We divide the numerator by our whole number denominator and get the desired quotient. In our example, 180/3 = $3\overline{)180}$ = 60.

Continued on next page

Let's look at the steps again.

Step 1 -- $.3/\overline{18} = 18/.3$

Step 2 -- 18/.3 = 180/3 (IMPORTANT STEP. Do you see how we got it? If not, go back and read through the explanation under SECOND again.)

Step 3 -- $180/3 = 3/\overline{180} = 60.$

Turn to page 132.

Okay!

Continue.

The quotient of $.01/\overline{8}$ is:

(a) 8 Turn to page 141

(b) 80 Turn to page 135

(c) 800 Turn to page 139

Ooops!

You got carried away with those zeroes. My guess is that you made a little mistake.

Go back to page 143 and work the problem again. Be more careful this time. Turn to page 143.

Your answer was incorrect.

Go to page 69 and continue from there. You'll find page 69 in Booklet #I of this Unit.

Incorrect.

In order to make 8/.01, have a whole number for a denominator (divisor), we must multiply by 100 which is a multiple of 10.

Go back to page 132 and try again.

Good! Your answer was correct.

What is the quotient of 1 ÷ .002?

(a) .002 Turn to page 142

(b) .5 Turn to page 143

(c) 50 Turn to page 152

(d) 500 Turn to page 148

Okay! That's correct!

The quotient of $.007/\overline{.05}$ is __?__ . Round your answer off to the nearest thousandth.

(a) .714 Turn to page 180

(b) 7.142 Turn to page 194

(c) 7.143 Turn to page 193

Okay! $1 \div .002 = .002/\overline{T}$.

Now go to page 136 and work the problem again.

Okay!

Now work this one.

$.05/\overline{5}$ = ?

(a) 100 Turn to page 136

(b) 10 Turn to page 147

(c) 500 Turn to page 154

Your answer is incorrect.

Go to page 131 for further explanation. Then continue from there. Turn to page 131.

I'm sorry, but your answer is incorrect.

Let's look at another example. Since $.01/\overline{8} = 8/.01$, what equivalent fraction do we want to change $8/.01$ into?

(a) 800/1 Turn to page 132

(b) 80/.1 Turn to page 131

Incorrect.

The symbol "÷" reads <u>divided by</u>.

Now, 1 ÷ .002 = ?

(a) $1/\overline{.002}$ Turn to page 134

(b) $.002/\overline{1}$ Turn to page 138

Your answer is incorrect.

Here's how the problem is worked.

Step 1 -- $1 \div .002 = 1/.002$

Step 2 -- $1/.002 = \frac{1 \times 1000}{.002 \times 1000} = 1000/2$

Step 3 -- $1000/2 = 2\overline{)1000} = 500.$

Step 2 is an important step in the division process involving a decimal divisor. Study it carefully.

Find the quotient of $.008/\overline{24}$.

(a) 30,000 Turn to page 133

(b) 3,000 Turn to page 155

(c) 300 Turn to page 159

Incorrect.

If you move the decimal point 3 placed to the right in the divisor, then you must move the decimal point in the dividend 3 places to the right.

Go back to page 153 and try again.

Your answer is incorrect.

Go to page 131 for further explanation. Then continue from there. Turn to page 131.

You need more work on the basic concepts of dividing by a decimal.

Go to page 131 and continue from there. Turn to page 131.

Incorrect.

For $.05/\overline{5}$ we multiply the divisor and the dividend by 100, not 10.

Try this problem.

$.5/\overline{15}$ = ?

(a) 3 Turn to page 151

(b) 300 Turn to page 141

(c) 30 Turn to page 139

Very good! That's correct.

Let's look at a short cut method for division with a decimal divisor. Our old method was to change the problem into a fraction and then to find an equivalent fraction with a whole number denominator. What we want to do now is to find that whole number divisor without changing the problem into a fraction.

You should have noticed that multiplying by a multiple of ten merely moves the decimal point to the right. Therefore, we shall get a whole number for a divisor by moving the decimal point the same number of places in the divisor and the dividend. Here are three examples.

Continued on next page

(a) $.3/\overline{1.873} = .3\,/\overline{1.8\,73} = 3/\overline{18.73}$

(b) $.03/\overline{1.873} = .03\,/\overline{1.87\,3} = 3/\overline{187.3}$

(c) $.003/\overline{1.873} = .003\,/\overline{1.873} = 3/\overline{1873.}$

Notice that I used a little arrow to show how many places I moved the decimal point.

Turn to page 149

Now you try this one.

70.4 ÷ .22 = ?

(a) 320 Turn to page 170

(b) 32 Turn to page 165

(c) 3.2 Turn to page 156

Whoocps! You made a mistake in arithmetic.

Go back to page 158 and work the problem again.

Hey! Don't forget the decimal point. Part of the problem is getting the decimal point out of the divisor.

Go back to page 147 and work the problem again.

Turn to page 147.

Your answer is incorrect.

Here's how the problem is worked.

Step 1 -- $1 \div .002 = 1/.002$

Step 2 -- $1/.002 = \frac{1 \times 1000}{.002 \times 1000} = 1000/2$

Step 3 -- $1000/2 = 2\overline{)1000} = 500$

Step 2 is an important step in the division process involving a decimal divisor. Study it carefully.

Find the quotient of $.008/\overline{24}$.

(a) 30,000 Turn to page 133

(b) 3,000 Turn to page 155

(c) 300 Turn to page 159

Okay!

Keep going. You're doing fine!

3.5 ÷ .175 = ?

(a) .05 Turn to page 158

(b) 20 Turn to page 170

(c) 2 Turn to page 144

Whoa! How many times does 5 divide 5?

Go back to page 139 and work the problem again.

Fine! That's the right answer.

What is 4 ÷ .0010?

(a) 4000 Turn to page 148

(b) 40,000 Turn to page 159

(c) .00025 Turn to page 161

Your answer is incorrect.

Go to page 165 for further explanation.

!What??

You better go back and read page 164 again. After carefully reading page 164, then work the problem again.

Ooops!

3.5 ÷ .175 means $.175\overline{)3.5}$.

Try another problem.

.0039 ÷ .13 = ?

(a) 3 Turn to page 130

(b) .333 Turn to page 150

(c) .03 Turn to page 153

Incorrect.

Remember you multiply by a multiple of 10 to make the divisor a whole number. For example, if the divisor is:

(a) .3, then we multiply divisor and dividend by 10

(b) .03, then we multiply divisor and dividend by 100

(c) .003, then we multiply divisor and dividend by 1000

Try this problem.

.001/$\overline{7}$ has a quotient of:

(a) 700 Turn to page 141

(b) 7000 Turn to page 155

Okay!

Try this one.

.0162 ÷ .45 = ?

(a) .036 Turn to page 162

(b) .00036 Turn to page 172

(c) .04 Turn to page 175

Incorrect.

The symbol "÷" means <u>divided</u> <u>by</u>.

Now, 4 ÷ .0010 = ?

(a) 4/.0010 Turn to page 155

(b) .0010/4 Turn to page 164

Good!

Let's continue.

.7 ÷ .09 = ? (Round off your answer to the nearest tenth.)

(a) .8 Turn to page 181

(b) 7.7 Turn to page 178

(c) 7.8 Turn to page 185

Incorrect.

For $10.7/\overline{.428}$, you move the decimal only <u>one</u> place to the right in the divisor to change it to a whole number. In other words,

$$10.7/\overline{.428} = 10.7/\overline{.4\,28}$$

Go back to page 168 and work the problem again.

Come now. You can do better than that!

4 ÷ .0010 means 4 divided by .0010 or $.0010/\overline{4}$.
Now, $.0010/\overline{4}$ can be written as the fraction
4/.0010. Then our conclusion is that 4 ÷ .0010
= 4/.0010.

You try one.

4 ÷ .2 = ?

(a) .05 Turn to page 157

(b) 2 Turn to page 159

(c) 20 Turn to page 155

Let's look at moving the decimal point in detail.

To divide 70.4 by .22, we first change it into the fraction 70.4/.22. Now we must multiply numerator and denominator (dividend and divisor, if you wish) by some number to make the denominator a whole number. 100 is the multiple of ten we need.

Now notice that multiplying numerator and denominator by 100 ($\frac{70.4 \times 100}{.22 \times 100}$) is the same as moving the decimal point two places to the right. In other words, $\frac{70.4 \times 100}{.22 \times 100} = \frac{70.40}{.22} = 7040/22$.

Now, if we don't write the problem as a fraction but merely move the decimal point two places to the right in <u>both</u> the dividend and divisor, we can save ourselves some work and paper. Using our example, $.22\overline{)70.4} = .22\overline{)70.40} = 22\overline{)7040.}$ Pretty neat, huh?

Turn to page 166

Now try this problem.

The quotient of $1.3/\overline{.39}$ is:

(a) 3 Turn to page 171

(b) .3 Turn to page 153

(c) .03 Turn to page 130

You need a closer look at dividing by a decimal.

OUR METHOD:

Step 1: We change the divisor to a whole number by moving the decimal the correct number of places to the right in the divisor and the dividend. Examples:

(a) $1.768/3.25 = \frac{1.768}{3.25} = \frac{176.8}{325}$

(b) $.325/\overline{37.4138} = .325/\overline{37.413.8} =$

$325/\overline{37413.8}$

Step 2: Divide as we did in Booklet #I of this Unit. For our last problem of $2.16/\overline{15.12}$, we moved the decimal two places to the right in the divisor and the dividend. Thus, $2.16/\overline{15.12} = 2.16/\overline{15.12} = 216/\overline{1512}$, and $216/\overline{1512} = 7$.

Are you ready to go on?

(a)	Yes	Turn to page 168
(b)	No	Turn to page 165 for more explanation

Find the quotient of $10.7/\overline{.428}$.

(a) .04 Turn to page 160

(b) .004 Turn to page 172

(c) 4 Turn to page 163

Your answer is incorrect.

You forgot to move the decimal point one place to the right in the dividend. $2.8/\overline{.00056}$ = $2.8/\overline{.0.0056}$ = $28/\overline{.0056}$ $\overset{.0002}{}$.

Try this one.

$.16/\overline{8.8}$ = ?

(a) 8 Turn to page 176

(b) 5.5 Turn to page 172

(c) 55 Turn to page 160

That's correct! You're doing fine.

Let's continue.

The quotient of $2.16/\overline{15.12}$ is:

(a) .07 Turn to page 174

(b) 700 Turn to page 167

(c) 7 Turn to page 162

Whooops!

Be more careful.

Go back to page 166 and work the problem again.

Incorrect.

You must take special care to move the decimal point the SAME number of places in the dividend as you do in the divisor. If you don't have enough digits in the dividend, then ADD zeroes until you have enough places.

Work this problem.

$.004/\overline{6.4} = ?$

(a) 1.6 Turn to page 130

(b) 1600 Turn to page 160

Did you add a zero to 1.9 to make it 1.90 before you moved the decimal point?

Go back and work the problem again and be more careful this time.

Turn to page 186.

Your answer is incorrect.

Go to page 167 for further explanation.

Your answer is incorrect.

Let's try another problem to get you back on the right track.

$2.8/\overline{.00056} = ?$

(a) .0002 Turn to page 160

(b) .00002 Turn to page 169

(c) .02 Turn to page 172

**!(($#*)(!

What did you do? Go back and choose a different answer. Turn to page 169.

Incorrect.

Let's look at how it's worked.

Step 1 -- $.6/\overline{.05} = .6\overset{\curvearrowright}{/}\overset{\curvearrowright}{.0}\dot{5} = 6/\dot{.5}$

Step 2 --
$$6/\overline{.5000}$$
$$\begin{array}{r} .0833 \\ 48 \\ \hline 20 \\ 18 \\ \hline 20 \\ 18 \\ \hline 2 \end{array}$$

Step 3 -- Round off to thousandths. .0833 rounds off to .083.

Work this problem and round off the quotient to thousandths.

$.6/\overline{.01} = ?$

(a) .016 Turn to page 183

(b) .167 Turn to page 180

(c) .017 Turn to page 137

Your answer is incorrect.

$.7 \div .09 = .09\overline{).70} = 9\overline{)70.00}$ $\quad 7.77$

63

$7\,0$

$6\,3$

70

63

7

Since we want our answer in tenths, we carry out our division to hundredths and then round off to tenths. 7.77 rounded off to tenths is 7.8.

What is 1.748 rounded off to tenths?

(a) 1.7 Turn to page 182

(b) 1.8 Turn to page 184

You need more practice in rounding off numbers.

Go to page 81 and read the explanation carefully. Then continue from there. Go to page 81 in Booklet #I of this Unit.

You seem to be having trouble locating your decimal point correctly in your answer. Remember, you move the decimal point in the dividend as many places to the right as you moved the decimal point in the divisor.

Examples: (a) $.3/\overline{.043} = .3\nearrow/\overline{.0\nearrow 43}$

(b) $.23/\overline{.0346} = .23\nearrow/\overline{.03\nearrow 46}$

Work this problem and round off the quotient to the nearest thousandth.

$2.2/\overline{.032} = ?$

(a) .015 Turn to page 137

(b) .014 Turn to page 191

Your answer is incorrect.

$$.7 \div .09 = .09\overline{).70} = 9\overline{)70.00}\quad 7.77$$

63
7 0
6 3
70
63
7

Since we want our answer in tenths, we carry out our division to hundredths and then round off to tenths. 7.77 rounded off to tenths is 7.8.

What is 1.748 rounded off to tenths?

(a) 1.7 Turn to page 182

(b) 1.8 Turn to page 184

Okay! That's correct!

Do this one and round off your answer to the nearest tenth.

$.12/\overline{.5}$ = ?

(a) .4 Turn to page 189

(b) 4.2 Turn to page 185

(c) 4.1 Turn to page 186

Whooops.

You didn't round off correctly.

Go back to page 177 and work the problem again.

Incorrect. You made a common error.

We <u>don't</u> start at the extreme right and round off. Since we are rounding off to tenths, we look at the <u>hundredths</u> place to see if the digit is 5, larger than 5, or less than 5. From this information we round off to tenths.

In the problem 1.748 the integer 4 is in the <u>hundredths</u> place. Since 4 is less than 5, we change all the places to zeroes starting with the hundredths place and moving to the right. In other words, 1.748 rounded off to tenths is 1.7.

Turn to page 182 and continue.

Very good!

Let's go on.

Find the quotient to the nearest thousandth.

$.6/\overline{.05}$ = ?

(a) .083 Turn to page 193

(b) .008 Turn to page 188

(c) .833 Turn to page 177

Incorrect.

When you move the decimal two places to the right in the divisor, you MUST move the decimal two places to the right in the dividend. If you don't have enough places, add zeroes.

Try this one and round off the quotient to the nearest tenth.

$.32\overline{)1.9} = ?$

(a) 5.9 Turn to page 182

(b) 6.0 Turn to page 179

(c) .6 Turn to page 173

Incorrect. You forgot to move the decimal two places to the right in the dividend and then place it in the quotient.

$.32/\overline{7.45} = .32\overset{\curvearrowright}{/}\overline{7.45\overset{\curvearrowright}{\cdot}} = 32/\overline{745.} = 23.281.$

Let's try one more.

Make sure you round this answer off to the nearest thousandth.

$.11/\overline{.0937} = ?$

(a) .085 Turn to page 180

(b) .852 Turn to page 137

(c) .8518 Turn to page 190

Incorrect. Let's look at how it's worked.

Step 1 -- $.6/\overline{.05} = .\overset{\curvearrowright}{6}/\overset{\curvearrowright}{.0}\dot{5} = 6/\dot{.5}$

Step 2 --
$$6/\overline{.5000}$$
$$\begin{array}{r} .0833 \\ \hline 48 \\ \hline 20 \\ 18 \\ \hline 20 \\ 18 \\ \hline 2 \end{array}$$

Step 3 -- Round off to thousandths. .0833 rounds off to .083.

Work this problem and round off the quotient to thousandths.

$.6/\overline{.01} = ?$

(a) .016 Turn to page 183

(b) .167 Turn to page 180

(c) .017 Turn to page 137

You made a careless mistake in rounding off your answer.

Go back to page 182 and work the problem again.

Incorrect.

You were supposed to round off to the nearest thousandth. Thousandths are three decimal places.

Go back to page 187 and work the problem again.

Turn to page 187.

I'm sorry, but you don't quite have the idea. Let's look at an example problem and go through it step by step. Our problem will be 1.6 ÷ .7.

Step 1 -- Set up the problem and move the decimal point the correct number of places in the divisor and the dividend. In our example problem this is one place. So:

$.7\overline{)1.6} = .7\overline{)1.6\dot{}} = 7\overline{)16}$

Step 2 -- Divide as we learned in Booklet #I of this Unit.

```
     2.285
  7)16.000
    14
    ──
     2 0
     1 4
     ───
       60
       56
       ──
        40
        35
        ──
         5
```

Step 3 -- Round off to the correct place. For 2.285 we would have 2.3 if we were to round off to tenths; or, if we were to round off to hundredths, we would have 2.29.

Continued on next page

Study the example and then continue.

Divide and round off the quotient to the nearest tenth.

$.9\overline{)1.1}$ = ?

(a) .1 Turn to page 179

(b) 1.2 Turn to page 182

Good!

Now work this one to the nearest thousandth.

$8.01/\overline{.0631}$ = ?

(a) .008 Turn to page 202

(b) .001 Turn to page 201

(c) .079 Turn to page 197

Very good! You're doing excellent work.

Here's the next problem. Round off your answer to the nearest thousandth.

The quotient of $3.23/\overline{17.483}$ is:

(a) .054 Turn to page 198

(b) 5.413 Turn to page 202

(c) .541 Turn to page 206

Incorrect.

You rounded off incorrectly to thousandths.

Let's try again.

$.32/\overline{7.45}$ to the nearest thousandth is:

(a) 23.281 Turn to page 137

(b) 2.328 Turn to page 180

(c) .233 Turn to page 187

Your last answer was incorrect.

Let's look at a detailed solution of $.024/\overline{48.6}$.

Step 1 -- $.024/\overline{48.6} = .024/\overline{48.600\dot{}} = 24/\overline{48600.\dot{}}$

Step 2 --
$$\begin{array}{r} 2025 \\ 24/\overline{48600.} \\ \underline{48} \\ 60 \\ \underline{48} \\ 120 \\ \underline{120} \end{array}$$

Step 3 -- Since the problem came out an even whole number, no rounding off was necessary. The answer is simply 2025.

Now work this problem correct to thousandths.

The quotient of .11 ÷ 4.7 is:

(a)	42.727	Turn to page 209
(b)	.234	Turn to page 204
(c)	.023	Turn to page 200
(d)	.021	Turn to page 199

You need to review the basic ideas of division by a decimal.

Turn to page 148 and read the explanation carefully. Then continue from there.

Turn to page 148.

Incorrect.

You made a careless mistake in locating your decimal point in the quotient.

Go back to page 192 and find your error. Turn to page 192.

Your last answer was incorrect. Let's look at a detailed solution of the problem.

Step 1 -- $3.23/\overline{17.483} = 3.23\overset{\curvearrowright}{/}\overline{17.48\overset{\curvearrowright}{3}} = 323/\overline{1748.\dot{3}}$

Step 2 -- Divide:

$$
\begin{array}{r}
5.4126 \\
323\overline{)1748.3000} \\
1615 \\
\hline
133\ 3 \\
129\ 2 \\
\hline
4\ 10 \\
3\ 23 \\
\hline
870 \\
646 \\
\hline
2240 \\
1938 \\
\hline
302
\end{array}
$$

Step 3 -- 5.4126 rounded off to thousandths is 5.413.

Now you work one correct to the nearest thousandth.

The quotient of $.27/\overline{9.431} = ?$

(a) .349 Turn to page 203

(b) 34.93 Turn to page 192

(c) 35.3 Turn to page 201

Your answer is incorrect.

You have made a careless mistake in your division.

Go back to page 195 and find your error.

Turn to page 195

Okay! You're doing fine now.

What is $.48/\overline{.25}$ to the nearest thousandth?

(a) 5.208 Turn to page 204

(b) .520 Turn to page 208

(c) .521 Turn to page 205

Incorrect.

See if you can get back on the track with this problem.

$.8/\overline{4.729}$ to the nearest thousandth is:

(a) 5.911 Turn to page 192

(b) .591 Turn to page 196

Good! That's the correct answer.

What is $.024/\overline{48.6}$ to the nearest thousandth?

(a) .203 Turn to page 207

(b) 2.025 Turn to page 195

(c) 2025 Turn to page 205

Whoa.

When you move the decimal point two places to the right in the divisor, you must move the decimal place in the dividend exactly the same number of places.

Go back to page 198 and work the problem again.

Your answer is not correct.

You are not moving the decimal point in the dividend over the correct number of places. Let's look at a couple of example problems.

(a) $4.7/\overline{.11} = 4.7_{\nearrow}/\overline{.1\overset{\cdot}{1}} = 47/\overline{1.\overset{\cdot}{1}}$

(b) $.48/\overline{.25} = .4\ 8/\overline{.25}^{\cdot} = 48/25$

Now work $.17/\overline{.0353}$ and round your answer off to the nearest thousandth.

(a) .208 Turn to page 200

(b) .021 Turn to page 201

(c) .207 Turn to page 210

Excellent! You have successfully completed this unit on division of decimals. Let's briefly review what you have learned.

1. You learned how to divide a decimal number by a whole number. This was done by placing the decimal point in the quotient and then dividing.

2. You learned how to divide any whole or decimal number by a decimal number. This was done by changing the divisor to a whole number and then proceeding as before.

3. You learned to round off or approximate your answers to the nearest whole number, tenths, hundredths, or thousandths.

You are now ready for a test on division of decimals. Tell your teacher you have finished this Unit.

Your last answer was incorrect. Let's look at a detailed solution of the problem.

Step 1 -- $3.23/\overline{17.483} = 3.23/\overline{17.48\dot{3}} = 323/\overline{1748.\dot{3}}$

Step 2 -- Divide:

```
      5.4126
323/1748.3000
  1615
   133 3
   129 2
     4 10
     3 23
       870
       646
      2240
      1938
       302
```

Step 3--5.4126 rounded off to thousandths is 5.413.

Now you work one correct to the nearest thousandth.

The quotient of $.27/\overline{9.431} = ?$

(a) .349 — Turn to page 203

(b) 34.93 — Turn to page 192

(c) 35.3 — Turn to page 201

Your last answer was incorrect. Let's look at a detailed solution of $.024/\overline{48.6}$.

Step 1 -- $.024/\overline{48.6} = .024/\overline{48.600\dot{}} = 24/\overline{48600.\dot{}}$

Step 2 --
$$\begin{array}{r} 2025. \\ 24\overline{)48600.} \\ \underline{48} \\ 60 \\ \underline{48} \\ 120 \\ \underline{120} \end{array}$$

Step 3 -- Since the problem came out an even whole number, no rounding off was necessary. The answer is simply 2025.

Now work this problem correct to thousandths.

The quotient of .11 ÷ 4.7 = ?

(a)	42.727	Turn to page 209
(b)	.234	Turn to page 204
(c)	.023	Turn to page 200
(d)	.021	Turn to page 199

You made a mistake in rounding off your answer to thousandths.

Go back to page 200 and correct your error.

Turn to page 200

Ooops!

.11 ÷ 4.7 means .11 divided by 4.7 or $4.7/\overline{.11}$.

Go back to page 195 and divide correctly this time.

You rounded off your answer incorrectly. Go back to page 204 and find your error.

Turn to page 204.

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CAI MATHEMATICS

TEST QUESTIONS

UNIT 11 - DIVISION OF DECIMALS

1. $6\overline{)3.606}$ =

   a) 6.01

   b) .61

   c) .601

2. 24.8 divided by 2=

   a) 124

   b) 12.4

   c) 1.24

3. 6.32 rounded off to the nearest tenth is

   a) 6

   b) 6.3

   c) 6.4

4. $12\overline{)1.0384}$ =

   a) .0032

   b) .032

   c) .32

5. 5 divided by 9 when rounded off the thousandths is

   a) .55

   b) 1.800

   c) .56

6. The quotient of 2 divided by 3 rounded off to the nearest hundredth is

   a) 1.500

   b) 6.67

   c) .67

7. .45 is .4449876 rounded off to the nearest hundredth

   a) no

   b) yes

8. .09 $\overline{)18}$ =

   a) 2

   b) 200

   c) 20

9. .9 divided by 12 equals

   a) .075

   b) 1.333

   c) .750

10. 3.2 $\overline{)41.53}$ to the nearest thousandth is

   a) 12.978

   b) 12.669

   c) 1.298

11. 1.04545 rounded of to the nearest tenth is

   a) 1.05

   b) 1.1

   c) 1.0

12. .02 divided by 4 =

   a) 200

   b) .005

   c) .5

13. The quotient of 7.8 divided by 9 to the nearest hundredth is

    a) .86

    b) .87

    c) 1.15

14. 12.3674 rounded off to the nearest whole number is

    a) 12.4

    b) 13

    c) 12

15. 7.45 divided by 1.37 to the nearest hundredth is

    a) 5.44

    b) .183

    c) .54

16. .02 $\overline{)\ 3.0102}$ =

    a) 1.5051

    b) 15.51

    c) 150.51

17. Round off .00937 divided by 7.5 to the nearest thousandth

    a) .124

    b) .001

    c) .752

18. The quotient of 24.55 divided by .25 =

    a) .982

    b) .0102

    c) 98.2

19. 7.3564 rounded off to the nearest hundredth is

    a) 7.35

    b) 7.356

    c) 7.36

20. 1.1 divided by 9 to the nearest thousandth is

    a) .122

    b) 8.18

    c) .012

21. To the nearest tenth 12 divided by 7.61 is

    a) .6

    b) 1.6

    c) 15.8

22. .039 divided by .13 =

    a) .300

    b) .003

    c) 7.692

23. .0353 divided by .17 to the nearest thousandth is

    a) .208

    b) .021

    c) .207

24. .05 divided by 11 to the nearest thousandth is

    a) 2.200

    b) .005

    c) .004

25. 70.4 divided by .22 to the nearest whole number is

    a) 31

    b) 3

    c) 320

ANSWER SHEET

UNIT 11 - DIVISION OF DECIMALS

1. c
2. b
3. b
4. a
5. c
6. c
7. a
8. b
9. a
10. a
11. c
12. b
13. b
14. c
15. a
16. c
17. b
18. c
19. c
20. a
21. b
22. a
23. a
24. b
25. c

To the instructor: The above problems are related to the objectives as follows:

OBJECTIVE 1 : Questions 1,2,4,5,6,8,9,10,12,13,15,16,17,18,20,21,22,23,24,25

OBJECTIVE 2 : Questions 3,5,6,7,10,11,13,14,15,17,19,20,21,23,24,25